Students with disabilities should have equal opportunities to participate in higher education as well as students without disabilities. These opportunities are mentioned in a number of various international conventions within a growing attention. According to this growing attention, Higher Education Council in Turkey, determined the Counseling and Coordination Regulations for Higher Education Disabled Students and within the framework of this regulation, Disabled Students Units (DSUs) were formed. The aim of the study is to determine the opportunities provided by state universities’ DSUs in Turkey reveal the role of Information Communication Technologies (ICT) in these opportunities and put forward related suggestions for future studies. The research model of the study is survey model included 104 state universities in Turkey. The research data were collected via the examination of the sections of DSUs on the websites. As a result of the study, it was seen that the services provided by DSUs were generally gathered within the scope of physical services and it is observed that ICT services have small size rate among other services.

Introduction

Individuals with disabilities experience problems in different fields in their daily lives. These problems, in contrast to the general view, do not result from their individual disabilities but from the responses of the society to these disabilities (Heron, 1997; International Labour Organisation-ILO, 2007). Besides the management of social perceptions, providing appropriate educational opportunities could decrease the problems experienced by the disabled and increase their well-being.

In a number of international conventions and contracts, especially in the Convention on the Rights of the Child (1989), the education right is considered to be sacred and universal. The necessity to provide the disabled with appropriate educational opportunities is mentioned in a number of international conventions. These conventions included the 1944 Philadelphia Declaration by International Labor Organization (ILO, 2007), Education Declaration for Everybody by UNESCO (Inter-Agency Commission, 1990), Standard Rules on the Equalization of Opportunities for Persons with Disabilities by the United Nations (United Nations Department of Public Information, 1994), Salamanca Declaration and Action Plan by UNESCO (UNESCO, 1994), Dakar Action Plan by UNESCO (UNESCO, 2000) and 2006 Convention on the Rights of Persons with Disabilities by the United Nations.

It is has been a matter of debate for years whether the disabled should be involved in the higher education system or not. According to Fuller, Bradley and Healey (2004), attendance of the disabled at higher education is an opportunity for equal education within the society as well as for the development of the capabilities of the disabled. Hurst (1996) states that attendance at higher education allows the disabled to increase their knowledge, develop their social skills, increase their efficacies and participate in speaking and discussion environments. In addition, as there
was no legislation in the past that forced higher education institutions to accept the disabled or to make the necessary arrangements, the rate of attendance of students with disabilities at higher education was quite low (Holloway, 2001).

With such conventions as the United Nations Convention on the Rights of Persons (2006) with Disabilities which aimed at protecting the rights of the disabled to attend higher education, as can be seen in Figure 1, this situation has demonstrated a positive change in recent years.

As shown in Figure 1, although there was a gradual increase in attendance of the disabled at higher education in our country, it was a thought-provoking fact that our country is among those countries below the OECD average.

Providing Equal Educational Opportunity to Students with Disabilities: Role of Information and Communication Technologies

Though found in international conventions and national regulations (Riddell, Tinklin adn Wilson, 2005), it is debatable whether higher education institutions can provide students with disabilities good-quality and equal educational opportunities or not (Moriña, Cortés and Melero, 2013). In order to create an inclusive environment in higher education environments, not only should all students be able to benefit equally from the opportunties provided but also the obstacles likely to be experienced by the disabled regarding teaching, learning and assessment should be removed (Fuller, Bradley and Healey, 2004). According to Ball (2009), Information and Communication Technologies (ICT) play the key role in removing these obstacles as well as in helping students benefit effectively from the services provided in educational institutions. In a number of studies, it is pointed out that ICT has the potential to provide all individuals with equal opportunities for education and socialization (Czerniewicz and Brown, 2009; Fitchen et.al., 2012; Warschauer, Knobel and Stone, 2004).

In order to make use of the opportunities provided by ICTs, it is necessary to increase students with disabilities’ levels of digital literacy. Digital literacy is a multi-dimensional concept that requires individuals to use such cognitive skills as defining, accessing, evaluating, analyzing and synthesizing so that they can effectively use digital tools and sources (Martin, 2008). Seale and colleagues (2010) state that individuals with disabilities with low levels of digital literacies experience problems in accessing the digital tools and services provided by institutions. For the
purpose of developing individuals with disabilities’ digital literacies, there is a need for educators with high levels of
digital literacies who can take active role in the process.

Selwyn and Facer (2007), who examined inclusion within the context of sources and choices, stated that all
individuals have the right to get informed about ICTs and to make their choice freely and that it is the responsibility
of institutions to provide the necessary related sources. Seale and colleagues (2010) consider the concept of equality
of opportunity brought about ICT within the scope of digital inclusion and define the concept as equality of
opportunities for students with disabilities and without disabilities to participate via ICTs in such areas as learning,
finding a job, citizenship and social activities. It is only possible via digital inclusion for an institution to present its
services equally and effectively to all its sharers and especially students with disabilities. In addition, it is not
appropriate to discuss digital inclusion in the manner of increasing digital access. Draffan and Rainger (2006)
pointed out that the concept of digital inclusion has a technical dimension as well as pedagogical and institutional
dimensions. In this respect, it is seen that digital inclusion requires a more detailed process for students with
disabilities than allowing them to reach products and services.

Ball (2009) suggested an action plan made up of 12 phases for the inclusive use of technology in educational
institutions. These phases were: Establishing the digital inclusion team, gathering and introducing good samples of
digital inclusion in the institution, preparing handbooks for teaching, learning and assessment, providing inclusive
activities for teaching-learning strategies, providing the staff and students with free software, applying assistive
technologies for teaching, learning and assessment, students with disabilities’ taking part in decision-making
mechanisms, preventing conflicts related to technology use, maintaining the functionality of the equality scheme,
spreading inclusive applications to all administrative levels, adding inclusive applications into the budget, emphasizing that digital inclusion is a process.

For effective digital inclusion, one of the strategies applied is the techno-differentiation of the instructional content. Students with disabilities are regarded as quite a heterogenous group in terms of their individual characteristics (Broderick, Metha-Parekh and Reid, 2005; Stanford, Crowe and Flice, 2010). This situation makes it compulsory to restructure the teaching process within the framework of learner needs.

Differentiation of teaching is basically necessary to help students with disabilities acquire real-life skills and to help
them continue their education in harmony with students without disabilities in the same learning environments
(Tomlinson, 1999, 2001; Tomlinson, Kaplan, Renzulli, Purcell, Leppien and Burns, 2002). In this respect, it could
be stated that techno-differentiation should be made for an effective and economical production of a sufficiently
comprehensive instructional content. As can be seen, related regulations, institutional strategies and applications are
necessary to allow higher education students with disabilities to make effective use of all the facilities of educational
institutions. In this respect, the regulations made in Turkey are as follows.

*Regulations Made by Higher Education Institutions in Turkey for Students with Disabilities*
The regulations to be made by higher education institutions in Turkey for students with disabilities are determined
with the Counseling and Coordination Regulations for Higher Education Disabled Students (Higher Education
Council, 2010), and within the framework of this regulation, Disabled Students Units (DSU) were formed (Student
with Disability Committee, 2013). In this regulation, the duties of DSU included; determining the needs of students
with disabilities in educational, instructional, administrative, physical and social areas as well as in the areas of
accommodation and scholarship during their higher education; determining the necessary precautions to meet these
needs; suggesting solutions to possible problems; and making the necessary regulations in coordination with other
units or other departments found in the university; optimizing the educational environment of higher education
students with disabilities in a way to avoid hindering their academic, physical and social lives; providing the tools
necessary for the disabled; developing special course materials; organizing education, research and accommodation
environments appropriate to the disabled; preparing documents that inform faculty members about disabled and
about the restrictions caused by impaired as well as about the related regulations to be made; raising their
consciousness; providing related authorities with counseling services; providing in-service training when necessary;
developing programs and projects to increase consciousness and sensitiveness in the area of impairment; organizing
seminars, conferences and other similar activities; preparing and executing the work schedule of the unit;
determining the necessary budget needs for activities; preparing and presenting an annual activity report to the vice-
chancellor concerned; preparing a website which provides all parties with publications, documents and any other
related information about the duties of higher education disabled students units and which allows university students

106
with disabilities to report their problems and demands by communicating with the related unit; inspecting the application of the decisions made and of the strategies determined; providing subsidiary tools for free for students with disabilities with financial difficulties; involving all students in a fair and correct measurement and assessment process; providing equal opportunities and making the education process appropriate to students with disabilities; providing students with disabilities with appropriate materials, places, duration and companion readers for their exams; and taking the necessary precautions and making the related regulations depending on the type of impairment; preparing books that give information about employment and professions; presenting these books to handicapped students; determining students with disabilities who have gained the right to attend higher education programs; making the university campus and the buildings and outdoor places in the campus accessible to students with disabilities (YÖK, 2010).

When the items determined regarding the DSU activity areas were examined, it was seen that there were no regulations regarding ICTs. Therefore, it is necessary to reveal the current situation regarding the ICT-related services provided by universities for students with disabilities. In this respect, the purpose of the present study was not only to determine the opportunities provided by state universities in Turkey for students with disabilities but also to reveal the role of ICT in these opportunities and put forward related suggestions for future studies.

Methodology

Research Design

The research is designed with the survey model. 104 public universities in Turkey are selected as the sample of the research. The names of the public universities were obtained from the list of universities given on the webpage of Higher Education Council (HEC). Private universities excluded from the sample to provide equal distribution of the financial and human sources.

Data Collection

The research data were collected via the examination of the sections of Disabled Students Units on the websites of the state universities between the dates of 06.11.2013 and 30.12.2013. The services mentioned on the websites for students with disabilities were classified under the service headings found in the Counseling and Coordination Regulations for Higher Education Institutions. In addition, in line with the services found in Disabled Students Units, the dimension of psychological services was added by the researchers to these headings.

Data Analysis

Descriptive statistics were used to analyze the data. In this respect, the services provided by the disabled students units were scored, the percentages were obtained and presented in tables. With respect to the reliability of the examinations made, the researchers revised the units they had examined by replacing the units within the group.

Findings

When studies conducted by the disabled students units in several higher education institutions in our country were examined, it was seen that there were no such units in some of the institutions; that the units found in some of the institutions were not active; and that the units found in some other institutions carried out certain related studies (Table 1) (Higher Education Council, 2013; Towards Inclusive Universities, 2013).

| DSUs found in state universities in Turkey (Higher Education Council, 2013) |
|-----------------|--------|------|
| N               | %      |
| Universities with DSU activities * | 75     | 72.11 |
| Universities without any DSU activities ** | 22     | 21.15 |
| Universities without any DSUs *** | 7      | 6.73  |
| Total           | 104    | 100   |

* Universities with DSU activities: universities reporting their services for students with disabilities on their DSU webpages
** Universities without any DSU activities: universities with a DSU webpage but not reporting any services for students with disabilities on their DSU webpages
*** Universities without any DSUs: universities without any DSU webpages

The survey revealed that among the 104 state universities found in our country, about 72.11% of them had active DSUs. In other words, it was found out that these units not only allowed students with disabilities to reach their educational environments and to participate in various educational and social activities but also provided faculty
members and other higher education staff with several services to help them raise related awareness. However, of all
the state universities, 21.15% of them did not carry out any related activities, and 6.73% of them did not embody
DSUs.

Considering the duties of DSUs found in state universities in Turkey, the services provided are as follows;

- Physical services,
- Psychological support services,
- Social support services,
- Academic services (YÖK, 2010).

In line with this classification, the services reported on the webpages of DSUs found in state universities in Turkey
were examined and presented in Table 2.

| Physical, psychological and social support services provided by DSUs found in state universities in Turkey |
|-------------------------------------------------|-------|
| N | % |
| Wheelchair ramps, balustrades, lifts, special toilet systems, parking lots, services and so on. | 46 | 42.23 |
| Support provided by psychologists and psychiatrists | 16 | 15.38 |
| Activities carried out to the levels of consciousness and sensitiveness (meetings, seminars, workshops, symposiums, conferences and so on) | 42 | 40.38 |
| Various projects, sports and cultural activities | 22 | 21.15 |
| Orientation (introduction of the university, guides, leaflets, tools and so on) | 32 | 30.76 |
| Accommodation, transportation and health services | 18 | 17.3 |
| Scholarship and economic aid | 13 | 12.5 |
| Employment (part-time and full-time employment) | 11 | 10.57 |

According to the survey results obtained regarding the physical, psychological and social support services provided
by DSUs, about 42.23% of all the state universities in our country provide such physical services as wheelchair
ramps and lifts, and 15.38% of them provide support given by psychologists and psychiatrists. In addition, among
the state universities found in our country, approximately 40.38% of them carry out such activities as seminars and
meetings to raise the consciousness and sensitiveness levels regarding the problems experienced by students with
disabilities during their education as well as regarding the suggested solutions to these problems; 21.15% of them
carry out sports and cultural activities; and 10.57% of them try to provide students with disabilities with the
opportunity for part-time and full-time employment.
Besides the services provided for students with disabilities by DSUs found in higher education institutions in Turkey (Table 2), there are also various other academic services provided for the education of students with disabilities as well. These services can be seen in Table 3.

Table 3. Academic services provided by DSUs in state universities in Turkey

<table>
<thead>
<tr>
<th>Service Description</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic consultancy for students with disabilities</td>
<td>25</td>
<td>24.03</td>
</tr>
<tr>
<td>Organization of exams and arrangement of the exam durations</td>
<td>21</td>
<td>20.19</td>
</tr>
<tr>
<td>Various audio materials (music CDs, books read aloud)</td>
<td>15</td>
<td>14.42</td>
</tr>
<tr>
<td>Equipment variety (braillewriter, book reader, special keyboards and so on)</td>
<td>11</td>
<td>10.57</td>
</tr>
<tr>
<td>Educational and vocational guidance services</td>
<td>10</td>
<td>9.61</td>
</tr>
<tr>
<td>Arrangement of special rooms in libraries</td>
<td>8</td>
<td>7.69</td>
</tr>
<tr>
<td>Availability of special computers in line with the kind of handicap</td>
<td>7</td>
<td>6.73</td>
</tr>
<tr>
<td>Creating an individual adaptation letter (e-environment, braille, large font sizes and so on)</td>
<td>7</td>
<td>6.73</td>
</tr>
<tr>
<td>Software variety (screen reader software and so on)</td>
<td>6</td>
<td>5.76</td>
</tr>
<tr>
<td>Publications written with the Braille alphabet</td>
<td>6</td>
<td>5.76</td>
</tr>
<tr>
<td>Arrangement of websites for students with disabilities</td>
<td>4</td>
<td>3.84</td>
</tr>
<tr>
<td>Course partners</td>
<td>4</td>
<td>3.84</td>
</tr>
<tr>
<td>Various e-sources / materials</td>
<td>3</td>
<td>2.88</td>
</tr>
<tr>
<td>Note-taker in class</td>
<td>2</td>
<td>1.92</td>
</tr>
<tr>
<td>Creating education centers in line with the kind of disability</td>
<td>2</td>
<td>1.92</td>
</tr>
<tr>
<td>Trainings on how to establish communication with students with disabilities</td>
<td>2</td>
<td>1.92</td>
</tr>
<tr>
<td>Establishing an E-library</td>
<td>2</td>
<td>1.92</td>
</tr>
</tbody>
</table>

Among the activities organized by DSUs are providing such services as organization of exams and arrangement of the exam durations besides note-takers, course partners and academic consultants that could help students with disabilities with their courses.

Regarding the academic services examined, it was seen that 24.03% of the state universities in our country provide students with disabilities with academic consultants; that 20.19% of them provide the services of organization of exams and arrangement of the exam durations; that 3.84% of them provide course partners; and that 1.92% of them provide such services as note-takers and carry out activities to help communicate with students with disabilities. In addition, of all the state universities, 1.92% of them embody education centers in line with the kind of impairment of students with disabilities.

It is seen that some of the services regarding the academic activities of DSUs are provided with the use of ICT sources. These services include not only providing a variety of equipment such as book readers and computers depending on the kind of impairment of students with disabilities but also making a variety of software available to students with disabilities such as screen reader programs. In addition, there are audio-visual electronic sources and other publications produced with a braillewriter for social and academic development of students with disabilities.

The survey results also revealed that of all the state universities found in our country, 14.42% of them provide various audio materials such as music CDs and audiobooks; that 10.57% of them provide such services as a braillewriter and book readers; that 3.84% of them arrange their websites according to students with disabilities; and that 1.92% of them try to establish an electronic library. Among the academic services provided by DSUs, the services which involve the use of ICT sources were compared with other services provided, as can be seen in Figure 1.
Figure 1. Comparison made between the services involving the use of ICT sources and other services provided by DSUs in state universities in Turkey

As can be seen in Figure 1, when the services provided by N-HSU found in state universities in our country are examined in general, it is seen that the rate of the services involving the use of ICT sources for students with disabilities is lower than that of other services. Making more use of ICT facilities for the purpose of reaching educational environments as well as for the purpose of equal use of educational opportunities provided in these environments is considered to be an important factor to support the educational and social development of students with disabilities. Considering the results of the survey conducted, it could be stated that among the services provided by DSUs, ICT services have rate of 16.61% while other services have a rate of 83.38%.

Conclusion and Suggestions

The purpose of the development of the Counseling and Coordination Regulations for Higher Education Disabled Students and the establishment of DSUs in higher education institutions within the framework of this regulation is to allow students with disabilities to have equal rights to students without disabilities and to provide these students with disabilities with healthy educational environments via the services provided. In line with this, the study tried to determine the services provided by DSUs and examined the role of ICTs in the education of students with disabilities.

As a result of the survey conducted, it was seen that the services provided by DSUs were generally gathered within the scope of physical services. Especially with the delivery of the Counseling and Coordination Regulations for Higher Education Institutions to all the institutions, these institutions have started to invest in physical improvement and adaptation studies for the purpose of providing the disabled with easily accessible environments. Due to the increasing number of individuals with disabilities in higher education institutions, it is believed that besides the improvement and adaptations studies, it would be a better approach if physical services were rearranged in a way to cover all individuals with disabilities.

In addition to physical services, institutions provide services to increase the level of consciousness and sensitiveness within the scope of social support services. These services generally involve institutional representatives’ participation in such scientific activities as meetings, workshops, seminars, symposiums and conferences. In these activities, the problems experienced by students with disabilities are discussed, and solutions to these problems are suggested. In this respect, it is recommended that higher education institutions provide more support to various scientific activities carried out for individuals with disabilities and that representatives of students with disabilities take part in these activities. Among the social support services provided by DSUs are various projects, sports and cultural activities, orientation, accommodation, transportation, health services, scholarship, economic aid and employment.

Higher education institutions should not only accept students with disabilities and provide them with a good education environment but also help them find a place in the society by providing them with part-time or full-time job opportunities. In this respect, in order to allow students with disabilities to share the learning environment with students without disabilities, higher education institutions are supposed to increase their comprehensive studies on social support studies.
The increasing number of individuals with disabilities in higher education institutions brings about certain difficulties for students with disabilities to adapt themselves to these institutions and to continue their education. Thus, among the most important services to be provided for students with disabilities are psychological support services. When the psychological support services provided by DSUs are examined, it is seen that these services are provided less when compared to other services. In order for individuals with disabilities to get involved in higher education institutions and to continue their education, psychological support services should certainly be provided by all higher education institutions.

When the academic services provided by DSUs found in state universities in Turkey are taken into consideration, it is seen that these services are limited in number when compared to other services. Examination of the services provided makes it clear that appointment of an academic counsellor for each student with disability is important for easy adaptation of students with disabilities to their education processes. In this respect, it is believed that it would be beneficial if DSUs in other universities were to start studies on the appointment of an academic counsellor for each student with disability.

DSUs should organize the exams and arrange the exam durations in a way to allow students with disabilities to compete equally with students without disabilities during their education process. In this respect, it is seen that DSUs found in state universities in Turkey are not much efficient in organizing the exams and arranging the exam durations. In addition, the DSUs in other state universities should make more efforts to provide students with disabilities with fair exam conditions.

Some of the other academic services provided by DSUs include arranging special rooms in libraries, preparing individual adaptation letters, note-takers, course partners, arranging education centers in line with the kind of impairment and trainings regarding how to establish communication with students with disabilities. It is seen that these services are not efficiently provided by DSUs. Therefore, it could be stated that DSUs in higher education institutions are supposed to make more efforts on physical and social support services as well as on the academic processes of students with disabilities.

It is also seen that some of the academic services are with the use of ICT sources. The ICT services provided include providing various audio materials, a variety of equipment, special computers in line with the kind of impairment, a variety of software, materials produced with the braillewriter, arranging their websites according to students with disabilities, providing various e-sources and materials and establishing an e-library. When the services involving ICT use are examined, it is seen that such services are the least common among all services. The reasons for this are: investments in ICTs are fairly costly; priority is given to physical services; lack of staff who can effectively use ICT sources in the field; and students with disabilities’ ICT use generally includes access to digital sources.

ICTs, besides allowing access to digital sources, also have an important role in helping students with disabilities in an inclusive education environment in higher education institutions to make equal use of the facilities provided for all students. In addition, ICTs allow avoiding the obstacles encountered by students with disabilities in the teaching, learning and assessment processes. If these obstacles to students with disabilities can not be avoided, they are then subjected to individual deprivation as well as social exclusion (Selwyn, 2006) and digital discrimination (Bolt, 2000). Therefore, the services provided to help students with disabilities avoid social exclusion and digital discrimination should not only allow access to digital sources but also increase digital literacy. For this reason, it could be stated that higher education institutions should invest in ICT-supported services for students with disabilities.

**Limitations and suggestions for future research**

Current study possesses some limitations that should be considered when examining findings. The data were gathered via official web sites of state universities’ DSUs in Turkey between the dates of 06.11.2013 and 30.12.2013. This date range is set to provide a border for the study. Besides this, it is assumed that the data collected from these web sites are up to date and accurate.

In this research, web sites were used as the main data collection source to determine opportunities for students with disabilities. Investigating opportunities and needs for students with disabilities with qualitative data collections methods are recommended for future researches to examine physical, psychological, social and academic services more detailed in higher education. This research shows that higher education institutes attach importance to
physical, psychological and social services more than academic service and ICT usage in teaching-learning processes. In respect to this, identifying the opportunities with ICT usage in teaching-learning processes is recommended for future researches. In addition to this, teaching-learning processes need to be organised in a way that provide students with disabilities an open, accessible and equitable instructional environment. The role of ICT needs to be examine provide an open, accessible and equitable instructional environment. Examining the opportunities provided to students with disabilities in higher education institutions internationally is important to reveal the different implementations to address needs of students with disabilities in different contexts. In the context of culture, examining the role of ICT in services for student with disabilities is expected to reveal more generalizable results towards the needs of students with disabilities.

References


